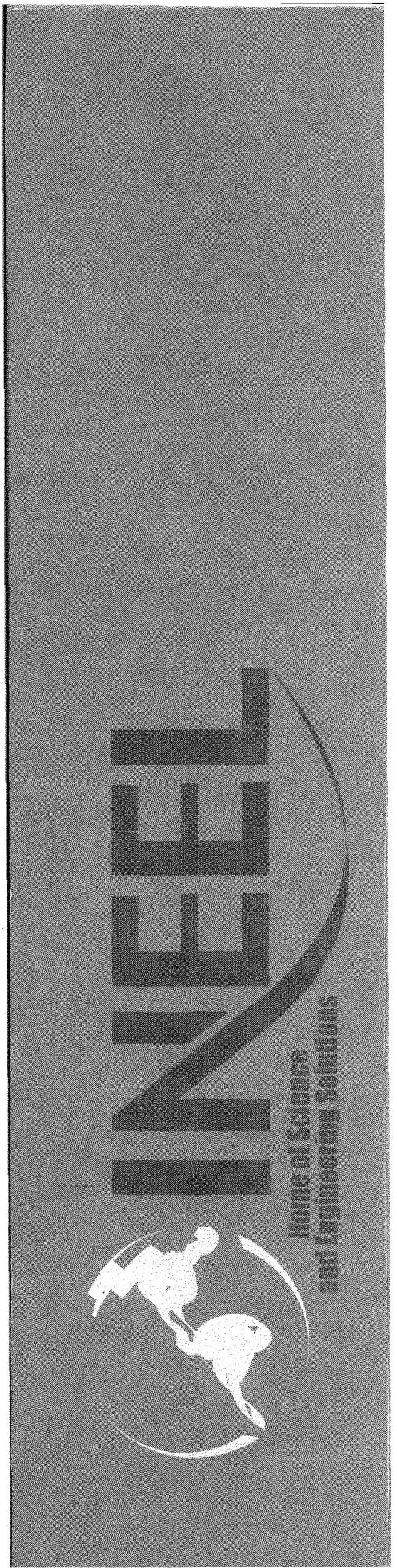
INEEL/EXT-03-00284 — Revision 0
Project No. 23095

Waste Management Plan for Group 3, PM-2A Tanks and Burn Pits, for Test Area North, Waste Area Group 1, Operable Unit 1-10



December 2003

INEEL/EXT-03-00284
Revision 0
Project-23095

Waste Management Plan for Group 3, PM-2A Tanks and Burn Pits, for Test Area North, Waste Area Group 1, Operable Unit 1-10

December 2003

Idaho Completion Project
Idaho Falls, Idaho 83415

Prepared for the
U.S. Department of Energy
Assistant Secretary for Environmental Management
Under DOE/NE Idaho Operations Office
Contract DE-AC07-99ID13727

Waste Management Plan for Group 3, PM-2A Tanks and Burn Pits, for Test Area North, Waste Area Group 1, Operable Unit 1-10

INEEL/EXT-03-00284

Approved by

Gary E. McDannel
WAG 1 Project Engineer

12/6/03
Date

James E. Bruce
OU 1-10 Comprehensive Project Manager

12/6/03
Date

ABSTRACT

This waste management plan describes waste management and minimization activities associated with the remedial design/remediation action work plan for the Operable Unit 1-10 Groups 3 Sites remedial actions to be implemented at the Idaho National Engineering and Environmental Laboratory in accordance with the Final Record of Decision for Test Area North, Operable Unit 1-10. The sites specifically addressed in this plan are the Technical Support Facility (TSF)-26 PM-2A Tanks and the TSF-03 Burn Pit.

This plan identifies the types and volumes (when possible) of wastes that are anticipated to be generated during implementation of the remedial actions. Additionally, this plan addresses waste characterization strategies, and requirements for waste storage, packaging, labeling, and transportation to a designated disposal facility.

CONTENTS

FIGURES

TABLES

ACRONYMS

AOC	area of contamination
BBWI	Bechtel BWXT Idaho, LLC
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DOE-ID	U.S. Department of Energy Idaho Operations Office
DOT	U.S. Department of Transportation
EDF	engineering design file
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
FFA/CO	Federal Facility Agreement and Consent Order
HEPA	high-efficiency particulate air
ICDF	INEEL CERCLA Disposal Facility
IET	Initial Engine Test
INEEL	Idaho National Engineering and Environmental Laboratory
IW	industrial waste
IWTS	Integrated Waste Tracking System
LDR	land disposal restriction
LLW	low-level waste
LOFT	Loss-of-Fluid Test
LSA	low specific activity
MLLW	mixed low-level waste
ou	operable unit
PCB	polychlorinated biphenyl
PPE	personal protective equipment

RCRA	Resource Conservation and Recovery Act
RD/RA	remedial design/remedial action
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
RWMC	Radioactive Waste Management Complex
SMC	Specific Manufacturing Capability
SVOC	semi-volatile organic compound
TAN	Test Area North
TSCA	Toxic Substances Control Act
TSD	treatment, storage, or disposal
TSF	Technical Support Facility
UCL	upper confidence limit
VCO	Voluntary Consent Order
VOC	volatile organic compound
WAC	waste acceptance criteria
WAG	waste area group
WGS	Waste Generator Services
WMP	waste management plan
WRRTF	Water Reactor Research Test Facility
WSA	waste storage area
WTS	waste technical specialist

Waste Management Plan for Group 3, PM-2A Tanks and Burn Pits for Test Area North, Waste Area Group 1, Operable Unit 1-10

1. PURPOSE AND OBJECTIVES

This waste management plan (WMP) is designed to support the waste management and minimization activities associated with the remedial desigdremedial action (RD/RA) work plan (U.S. Department of Energy Idaho Operations Office [DOE-ID] 2003a) developed for the Operable Unit (OU) 1-10, Group 3, Technical Support Facility (TSF)-26 PM-2A Tanks and TSF-03 Burn Pit sites at the Test Area North (TAN) Facility at the Idaho National Engineering and Environmental Laboratory (INEEL). The remediations are being performed in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the signed Record of Decision (ROD) for OU 1-10 (DOE-ID 1999), and the Explanation of Significant Differences (ESD) for OU 1-10 (DOE-ID 2003b). The selected remedy for the PM-2A Tanks includes excavating, and if necessary, disposing of the soil above and around the PM-2A Tanks; sizing, removing, packaging and disposing of the top half of each tank; removing and disposing of the tank contents; sizing, removing, packaging and disposing of the bottom half of each tank; performing confirmation sampling; backfilling the excavation with clean fill; and contouring the surface soil. The selected remedy for TSF-03 includes excavating the burn pit materials, disposing of the materials appropriately, performing sampling, and backfilling the excavation with clean fill. The Water Reactor Research Test Facility (WRRTF)-01 is also part of Group 3, OU 1-10. The selected remedy for WRRTF-01 is the installation of a native soil cover over Pits II and IV, contouring of the cover to promote drainage, revegetation of the area, and placement of granite monuments at the corners of the cover. However, as the only waste anticipated to be generated during remediation of this site is industrial waste (see Section 3.4.5), WRRTF-01 is not discussed further in this plan.

This plan identifies the types and the volumes (when possible) of wastes that are anticipated to be generated during the remedial actions and a strategy for managing them compliantly. In addition, this plan addresses the waste characterization strategy; requirements for waste storage, labeling, and packaging and transportation, and treatment, if required; as well as designated facilities for ultimate disposal of the waste. The plan also identifies required records and reports, and discusses strategies for minimizing waste during remediation activities.

2. SITE BACKGROUND

The INEEL is a U.S. Department of Energy (DOE) facility located in southeastern Idaho, 51.5 km (32 mi) west of Idaho Falls, and encompasses approximately 2.305 km^2 (890 mi^2) of the northeastern portion of the Eastern Snake River Plain (Figure 2-1). The TAN Facility is an area approximately 41 ha (102 acre), located in the north-central portion of the INEEL (Figure 2-1). The area includes four different facilities: (1) the TAN TSF, (2) the Initial Engine Test Facility (IET), (3) WRRTF, and (4) Specific Manufacturing Capability (SMC)/Loss-of-Fluid Test (LOFT) Facility. Since its construction in 1954, TAN has supported numerous research and testing projects, including development and testing of designs for nuclear-powered aircraft engines, reactor safety testing and behavior studies, armor manufacturing, nuclear inspections, and spent fuel storage operations.

In November 1989, because of confirmed contaminant releases to the environment, the U.S. Environmental Protection Agency (EPA) placed the INEEL on the National Priorities List of the National Oil and Hazardous Substances Contingency Plan (54 Federal Register 48 184). In response to this listing, the DOE, EPA, and the Idaho Department of Environmental Quality (herein referred to as the Agencies) negotiated the Federal Facility Agreement and Consent Order (FFA/CO) and Action Plan (DOE-ID 1991). The Agencies signed these documents in 1991, establishing the procedural framework and schedule for developing, prioritizing, implementing, and monitoring response actions at the INEEL in accordance with CERCLA, Resource Conservation and Recovery Act (RCRA), and the Idaho Hazardous Waste Management Act.

To better manage cleanup activities, the INEEL was divided into 10 Waste Area Groups (WAGs). Test Area North, designated as WAG 1, includes fenced areas and immediate areas outside the fence lines at the TSF, IET, LOFT, SMC, and WRRTF Facilities (Figure 2-2). The FFA/CO also established 10 OUs within WAG 1 consisting of 94 potential release sites. The sites include various types of pits, spills, ponds, aboveground and underground storage tanks, and a railroad turntable. Operable Unit 1-10 is listed as the WAG 1 Comprehensive Remedial Investigation/Feasibility Study (RI/FS) in the FFA/CO. The purpose of the RI/FS, initiated in 1995, was to assess the investigations previously conducted for WAG 1, thoroughly investigate the sites not previously evaluated, and determine the overall risk posed by the WAG (DOE-ID 1997). The OU 1-10 RI/FS culminated with the finalization of the OU 1-10 ROD (DOE-ID 1999), which provides information to support remedial actions for eight sites where contaminants present an unacceptable risk to human health and the environment.

The PM-2A Tanks site consists of two abandoned 189,270-L (50,000-gal) carbon steel underground storage tanks, their concrete containment troughs, associated piping, the waste content of the tanks, and the contaminated surface soils around them (Figure 2-3). The tanks were installed in the mid-1950s to store low-level radioactive waste from the TAN Evaporator and then the PM-2A Temporary Evaporator until 1975. The PM-2A Evaporator was decontaminated and decommissioned in the early 1980s. The tanks currently contain F001-listed mixed low-level waste (MLLW), contaminated with radionuclides, heavy metals, and organic compounds, including polychlorinated biphenyls (PCBs) below Toxic Substances Control Act (TSCA)-regulated concentrations. Diatomaceous earth was added to the tanks during the decontamination and decommissioning activities to absorb free liquid. However, a recent video of the tank interiors by Bechtel BWXT Idaho, LLC (BBWI) show some liquid in the west tank, V-14. The soil above and in the general area of the tanks was contaminated from occasional spills during routine operations, and from leaks and spills during the removal and treatment of the liquid waste.

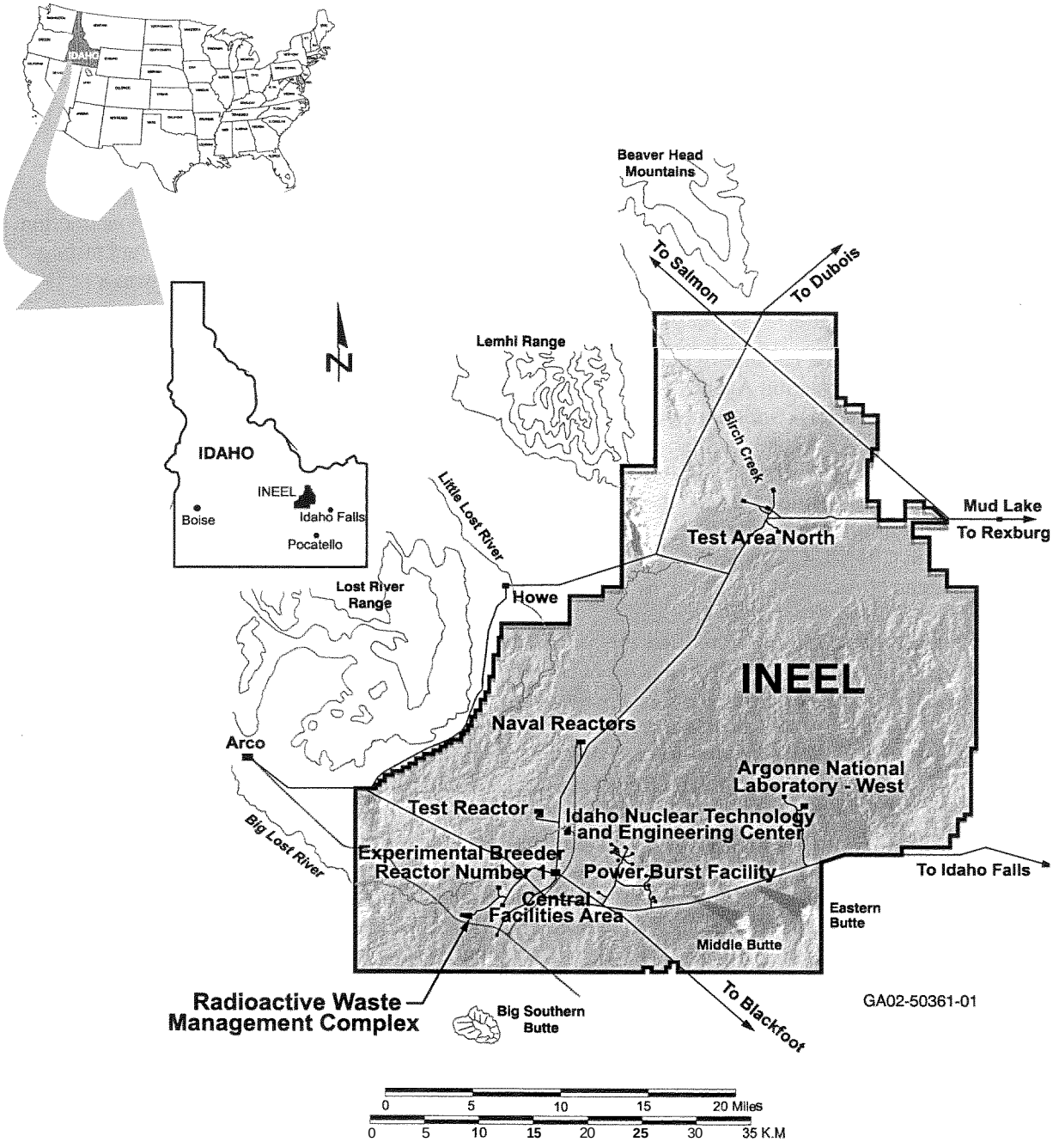


Figure 2-1. Location of the Idaho National Engineering and Environmental Laboratory,

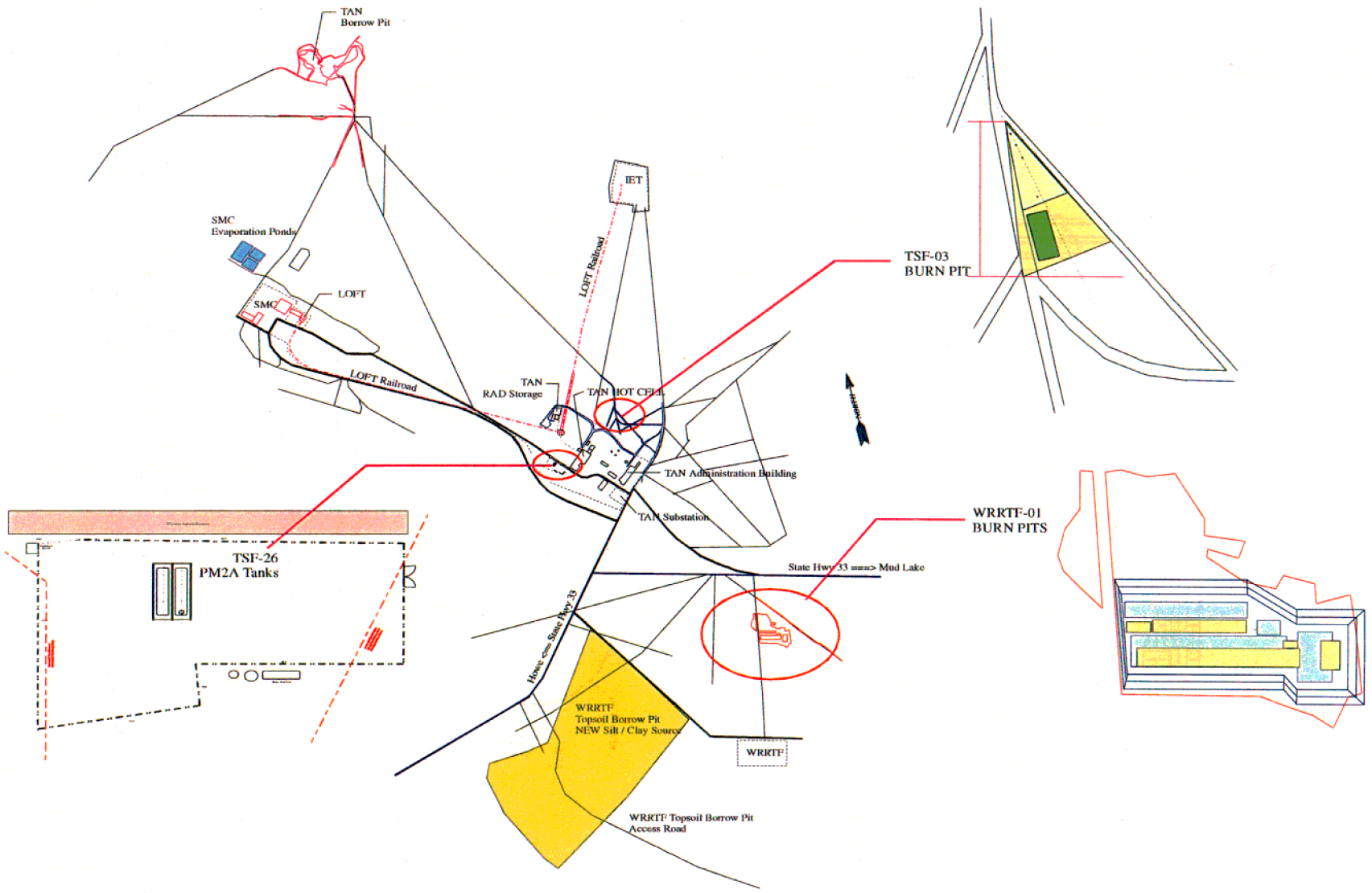
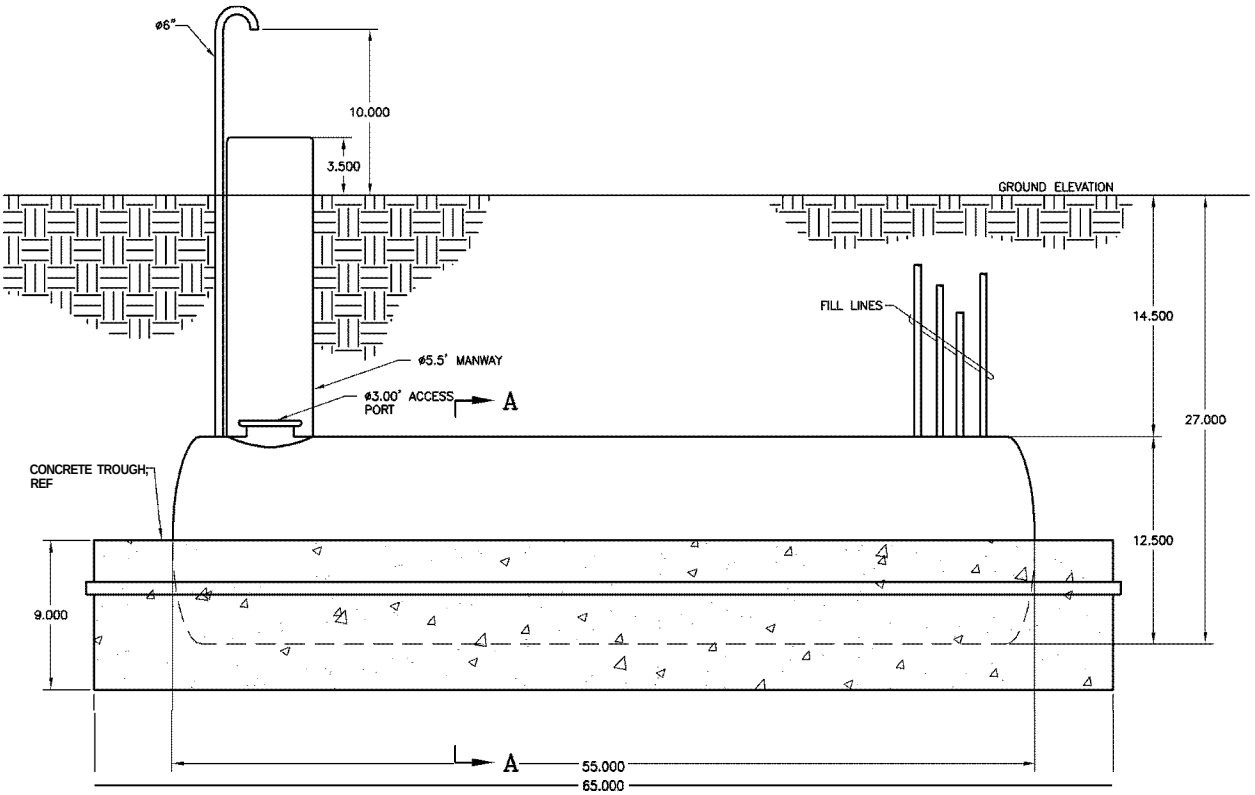
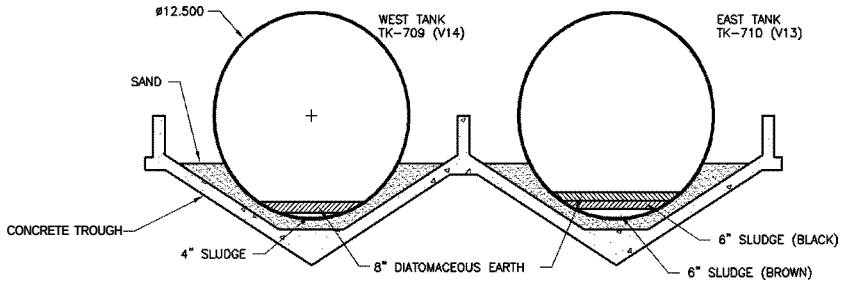


Figure 2-2. Waste Area Group 1, Test Area North Facilities.



a. Elevation: Looking West at Tank 710



Note: The sludge layers were measured before the diatomaceous earth was deposited.

b. **Section A – A Looking North**

Figure 2-3. PM-2A Tanks configuration.

The selected remedy for the PM-2A Tanks includes excavating and, if necessary, disposing of the soil above and around the tanks; sizing, removing, packaging and disposing of the top half of each tank; removing and disposing of the tank contents; sizing, removing, packaging and disposing of the bottom half of each tank; performing verification sampling; backfilling the excavation with clean fill; and contouring the surface soil.

Site TSF-03, shown in Figure 2-2, consists of a pit used for open burning of construction debris and wastes generated from various areas at TAN. During the 1950s, the pit received refuse, construction debris, and combustible liquids that were burned each time materials were disposed in the pit. Although no records were kept of the types or volumes of waste disposed in the pit, process knowledge, limited historical information, and sampling activities indicate that Stoddard solvent, oily waste, glass, metallic objects, fiberglass, and charcoal may have been placed there. Use of the pit was discontinued in 1958 and it was eventually backfilled with clean soil and revegetated. Subsidence control has been maintained.

The ROD-selected remedy for TSF-03 was installation of a native soil cover, with excavation and disposal as the contingent remedy. During 2000 and 2001, this site was resampled, in accordance with a second site characterization effort stipulated in the OU 1-10 ROD, to identify and assess additional contaminants of potential concern that may be present in the soils. The results of this resampling effort indicate that lead levels in the TSF-03 Burn Pit exceed the EPA Region 9 screening level of 400 mg/kg. Therefore, excavation and disposal is preferred over a native soil cover to ensure that no contaminants are left in place above risk-based levels and to alleviate the need for long-term maintenance or institutional controls. This decision is documented in the ESD to the ROD (DOE 2003b).

3. WASTE MANAGEMENT

3.1 Waste Stream Identification

A summary of the waste streams anticipated to be generated during the remediation of the PM-2A Tanks and the TSF-03 Burn Pit are presented in Table 3-1 and Table 3-2, respectively. The information provided in these tables includes the activities that will generate the waste, the waste types and applicable waste codes, estimated waste volumes, and the planned disposal options. These tables will be updated as necessary during the design process and/or if additional data or information becomes available for the sites.

Engineering Design File (EDF)-096-019, "ICDF Landfill WAC Evaluation," compares the existing data for the PM-2A Tank contents with the INEEL CERCLA Disposal Facility (ICDF) waste acceptance criteria (WAC). This comparison, included in Appendix F to the project RD/RA work plan (DOE-ID 2003a), indicates that the tank contents will likely meet the WAC.

During the spring of 2003, BBWI conducted soil sampling for the OU 1-10 Group 1 Sites TSF-06 (Soil Contamination Area South of the Turntable) and TSF-26 to obtain additional data to support and direct the selected remedies for these sites as identified in the OU 1-10 ROD. Samples were collected for metals, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), PCBs, and radionuclide analyses. This information will be used to update the waste summary provided in Table 3-1, as it becomes available.

If a new waste stream is identified during implementation of either remediation, that is not listed in Table 3-1 or Table 3-2 of this plan, it will be characterized either by using any and all available process knowledge to complete a waste profile, or, in the absence of such information, the waste stream will be sampled and analyzed and a material profile developed, to ensure that it meets all requirements for (potential) treatment, storage, and disposal. The new waste stream will be documented in the field logbook and the project files for inclusion in the RA report following completion of that remedial action.

3.2 Minimization and Segregation

Wherever possible, waste minimization strategies will be employed during implementation of the remedies. Waste minimization for this project will be accomplished through design and planning to ensure efficient operations that will not generate unnecessary waste. As part of the pre-job briefing, emphasis will be placed on waste reduction philosophies and techniques, and personnel will be encouraged to continuously suggest or improve methods for minimizing waste generation.

The following design components are summarized from the RD for the PM-2A Tanks (DOE-ID 2003a) and demonstrate specific waste minimization and waste segregation methods integral to the design for this remedial action. Figure 3-1 is provided for reference and indicates the location of specific work areas at the PM-2A Tanks site.

Table 3-1. Waste stream summary for the PM-2A Tanks site.

Remedial Action Activity	Waste Description	Location	Expected Type and Applicable Waste Codes	Estimated Volume	Planned DOT Class Packaging**	Storage Location	Planned Treatment/Disposal
Excavate soil above and around the tanks	Soil	PM-2A Tanks AOC	MLLW F001	164 yd^3*	Class 7 LSA Metal drumshoxes or wooden waste boxes	CERCLA WSA	Assume waste meets LDRs; no treatment required ICDF
Remove and size associated waste lines; verify lines are empty	Empty piping	PM-2A Tanks AOC	MLLW F001	39 ft^3	Class 7 LSA Metal drumshoxes or wooden waste boxes	CERCLA WSA	Assume waste meets LDRs; no treatment required ICDF
Remove tank contents	Sludge and diatomaceous earth	Inside PM-2A Tanks	MLLW F001	6,020 gal	Class 7A LSA, Type A Metal drumshoxes	CERCLA WSA	Assume waste meets LDRs; no treatment required ICDF
Remove tanks	Carbon steel tanks	PM-2A Tanks AOC	MLLW F001	165 ft^3	SCO II Shrmk wrap	NA	Assume waste meets LDRs; no treatment required ICDF
Decontaminate support equipment and ancillary systems (RUBB structures, HEPAs, hoses, etc.)	Debris (e.g., PPE, tools, rags, etc.)	PM-2A Tanks	MLLW F001	539 ft^3	Class 7 LSA Metal drumshoxes or wooden waste boxes	CERCLA WSA	Assume waste meets LDRs; no treatment required ICDF
Decontaminate excavation equipment	Debris (e.g., PPE, tools, rags: etc.)	PM-2A Tanks AOC (designated decon area)	MLLW F001	354 ft^3	Class 7 LSA Metal drums	CERCLA WSA	Assume waste meets LDRs; no treatment required ICDF
Decontaminate excavation and vacuum equipment	Decon water	PM-2A Tanks AOC (designated decon area)	MLLW F001	375 gal	Class 7 LSA Metal drums	CERCLA WSA	Absorblsolidify free liquid Assume waste meets LDRs; no treatment required ICDF

AOC area of contamination
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
DOT Department of Transportation
ICDF INEEL CERCLA Disposal Facility
LDR land disposal restrictions
LSA low specific activity
MLLW mixed low-level waste
PPE personal protective equipment
WSA waste storage area

*This volume is 3% of the total volume of soil estimated to be excavated from the PM-2A Tanks area. The remaining volume is assumed to be clean and is planned to be used as backfill for the excavation.
**The packaging determination is made from comparing the concentration data in EDF-3260 with the packaging requirements of PLN-120.

Table 3-2. Waste stream summary for TSF-03

Remedial Action Activity	Waste Description	Location	Expected Type and Applicable Waste Codes	Estimated Volume	Planned DOT Class Packaging**	Storage Location	Planned Treatment/Disposal
Excavate burn pit area	Soil	TSF-03 AOC	LLW	804 yd^3	Class 7 LSA Soil bags in roll-off containers	CERCLA WSA	Assume waste meets LDRs; no treatment required ICDF
Sample soil within the excavation	Debris (e.g., PPE, tools, rags, etc.)	TSF-03 AOC	LLW	192 ft^3	Class 7 LSA Metal drumshoxes or wooden waste boxes	CERCLA WSA	Assume waste meets LDRs; no treatment required ICDF
Sample soil within the excavation	Decon water	TSF-03 AOC	LLW	32 gal	Class 7 LSA Metal drums	CERCLA WSA	Absorb/solidify free liquid Assume waste meets LDRs; no treatment required ICDF
Decontaminate excavation equipment	Debris (e.g., PPE, tools, rags, etc.)	TSF-03 AOC (designated decon area)	LLW	354 ft^3	Class 7 LSA Metal drums	CERCLA WSA	Assume waste meets LDRs; no treatment required ICDF
Decontaminate excavation equipment	Decon water	TSF-03 AOC (designated decon area)	LLW	250 gal	Class 7 LSA Metal drums	CERCLA WSA	Absorb/solidify free liquid Assume waste meets LDRs; no treatment required ICDF
*All remedial action activities	Industrial waste	TSF-03 AOC	IW				INEEL Landfill Complex
*All remedial action activities	Low level waste	TSF-03 AOC	LLW				RWMC

AOC area of contamination
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
DOT Department of Transportation
ICDF INEEL CERCLA Disposal Facility
LDR land disposal restriction
LSA low specific activity
Pb lead
PCB polychlorinated biphenyl
PPE personal protective equipment
WSA waste storage area

* These waste types are included as placeholders in the event this type of waste streams are identified during remediation activities
** The packaging determination is made from comparing the currently available data for TSF-03 with the packaging requirements of PLN-120.

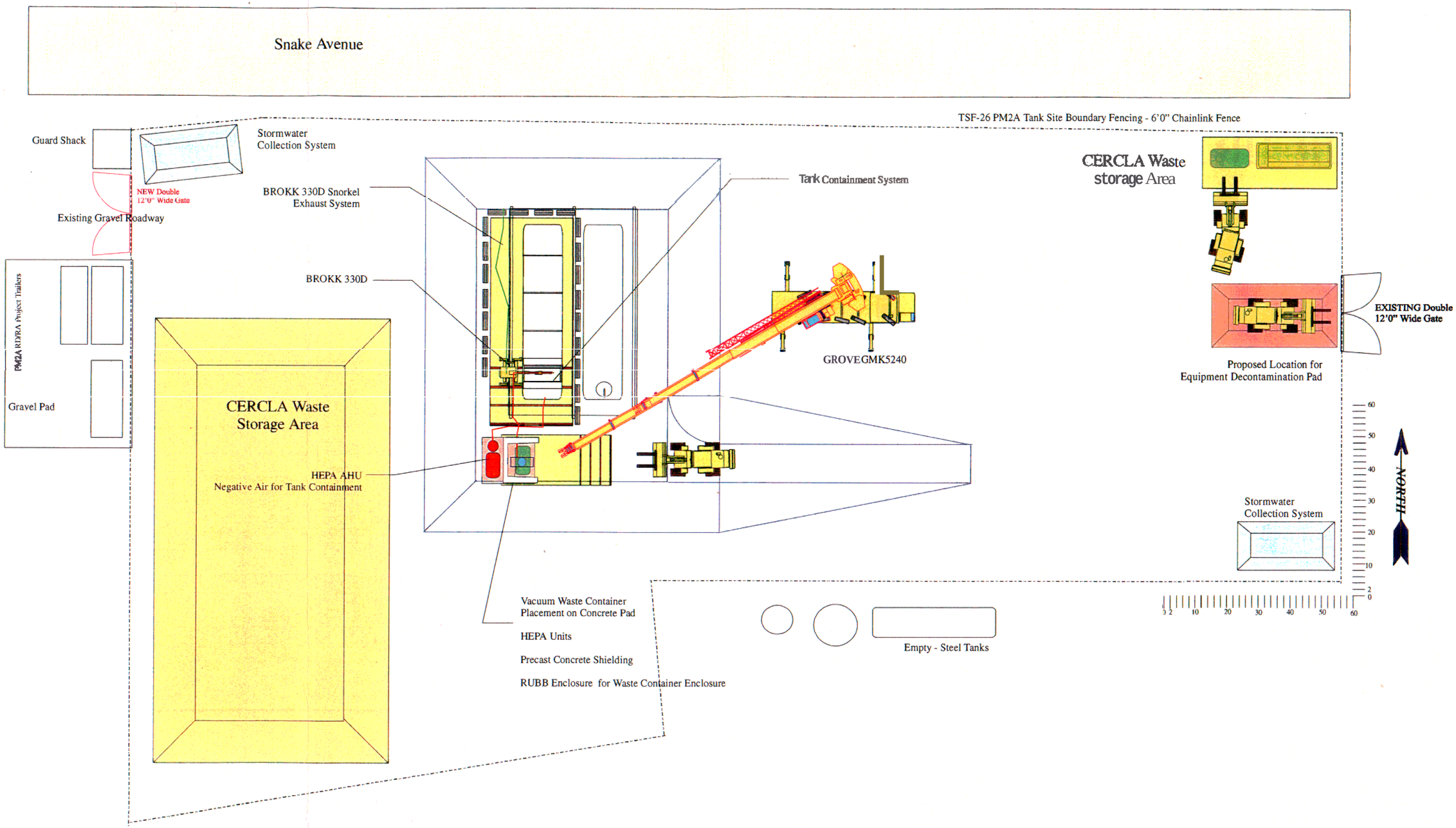


Figure 3-1. Location of specific work areas at the PM-2A Tanks.

- Radiological field screening will be performed during excavation of the soil above and around the tanks to aid in segregating clean soil that can be reused as backfill from contaminated soil that will be disposed of at ICDF. Soil screening will also help ensure that equipment is staged on clean soil in the bottom of the excavation.

- A portable weather enclosure will be placed over each tank during removal of the tank and its contents to minimize the potential for spreading contamination to nearby clean soil or to the air The enclosure is sized to accommodate the BROKK vehicle.

- A "dry" vacuum extraction system will be employed to remove the tank contents. This system was selected, among other reasons, to minimize the generation of liquid waste.

- A tank cover with a negative air flow system vented to high-efficiency particulate air (HEPA) filters will be placed over the bottom half of each tank during removal of the tank contents to minimize the potential for airborne contamination.

- The vacuum extraction system for removing the tank contents will be equipped with a knock-down hopper and air filter to remove solids from the air stream. This method will minimize the potential for airborne contamination.

- A portable weather enclosure will be placed over the knock-down hopper and waste container area to minimize the potential for spreading contamination to nearby clean soil or to the air.

- Plastic sheets will be placed within the tank excavation area for staging of the tank tops during removal of the tank contents and decontamination of the tank bottoms. This approach will prevent any potential cross-contamination from the tank tops to the clean soil surrounding the tanks.

- Plastic sheeting will be placed within the tank excavation area beneath the BROKK vehicle. This approach will prevent contamination of the clean soil from tank content removal activities.

- All waste containers in the area of contamination (AOC) will be covered when not in use to prevent windblown contamination.

- Stockpiles staged within the AOC will be covered with plastic when not in use to prevent the potential for windblown contamination.

- Water spray will be used to prevent the generation of airborne contamination during excavation activities. Conversely, the use of water spray during remediation activities will be monitored by designated field personnel to ensure that excessive water is not applied, thus minimizing the generation of liquid waste.

- Contaminated equipment will remain within the AOC during the RA. The traffic flow is designed to facilitate transfer of waste from equipment within contaminated areas to equipment staged in clean areas for transfer to ICDF. This strategy will prevent contamination from being tracked to clean areas.

The following design components are summarized from the RD for TSF-03 (DOE-ID 2003a) and demonstrate specific waste minimization and waste segregation methods integral to the design for this remedial action. Figure 3-2 is provided for reference and indicates the location of specific work areas at TSF-03.

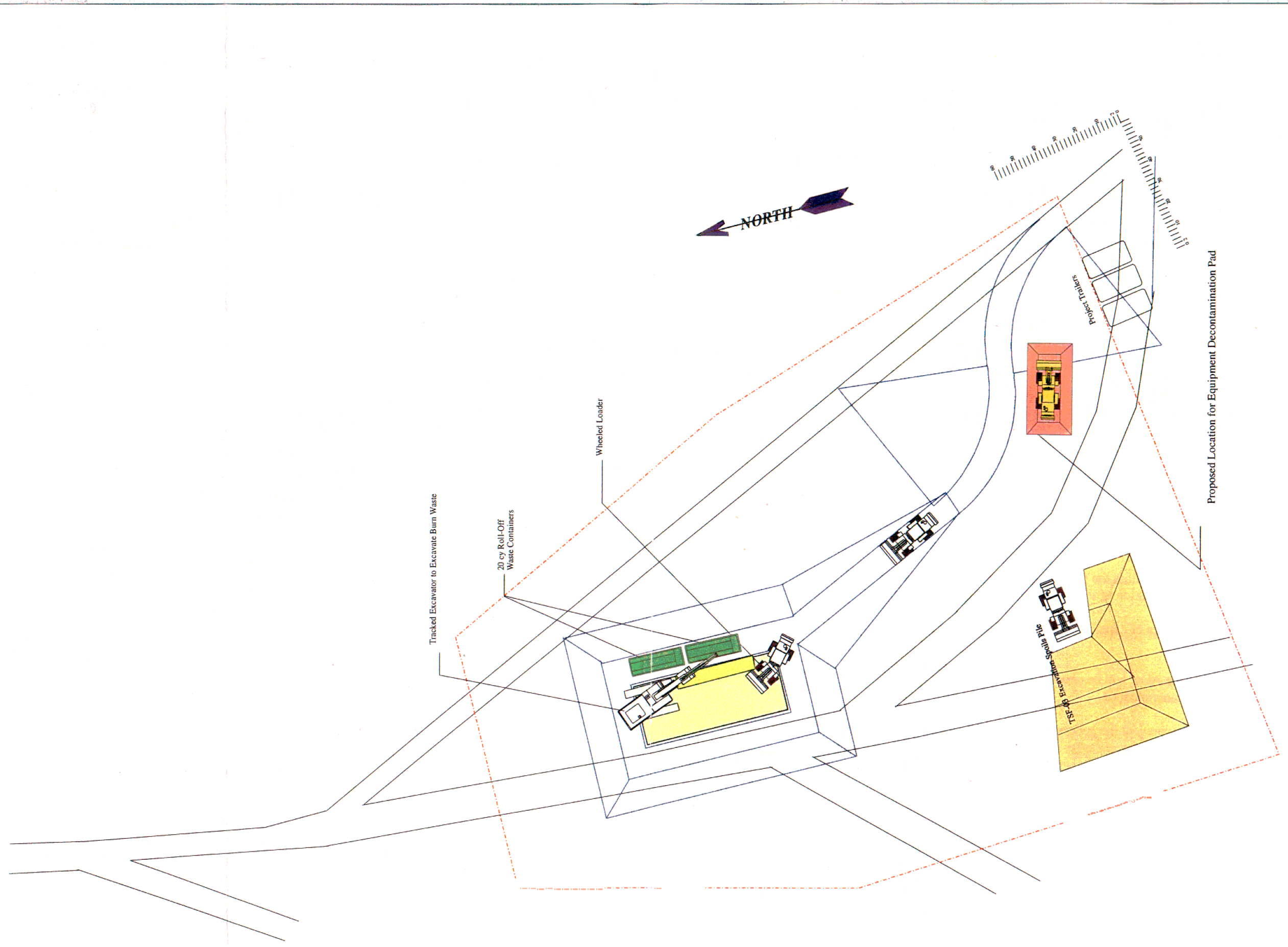


Figure 3-2. Location of specific work areas at TSF-03.

- Clean top soil will be stripped from the burn pit prior to commencing excavation of the burn pit material and stockpiled for use as clean backfill following completion of the remediation activities. Radiological field screening will be performed during excavation to aid in segregating clean soil from contaminated soil.

- The burn pit limits will be defined prior to commencing excavation activities by conducting "test excavations" in the areas believed to be the outer limits of the pit. This approach will minimize the excavation and possible contamination of clean soil surrounding the burn pit, which, in turn, will minimize the volume of waste requiring disposal at ICDF.

- Water spray will be used to prevent the generation of airborne contamination during excavation activities. Conversely, the use of water spray during remediation activities will be monitored by designated field personnel, to ensure that excessive water is not applied, thus minimizing the generation of liquid waste.

- The objective of decontaminating the equipment or items used during the remedial actions is to remove any hazardous waste and to meet free-release criteria from a radiological controls standpoint (to facilitate releasing these items so they may be taken out of the radiological-controlled areas of the site for use in other activities). A graded approach will be used to decontaminate soil sampling equipment for both RAs in order to minimize decontamination waste. The equipment will first be brushed clean to remove visual contamination. If this is not sufficient, the equipment will then be wiped clean with rags. If brushing and wiping of the sampling equipment is not adequate, the equipment will be steam cleaned. This approach is discussed in the project decontamination plan (INEEL 2003).

3.3 Waste Characterization Strategy

The implementation of the remedies for the PM-2A Tanks and TSF-03 will generate CERCLA remediation waste. These wastes will be characterized to support associated hazardous waste determinations that will provide information for their subsequent management. Waste streams will be identified and characterized, and the land disposal restriction (LDR) status will be determined, thereby ensuring that all applicable or relevant and appropriate requirements are met before the waste is shipped for potential treatment, storage and disposal (TSD). It is assumed for purposes of the PM-2A Tanks and TSF-03 RDs that all waste generated during these remedial actions will meet land disposal restrictions without treatment, and that all remediation waste generated will be accepted for disposal at the ICDF.

Waste managed in accordance with this WMP will be characterized by using approved sampling and analytical information, or by using process knowledge. Waste characterization based solely on process knowledge must ensure that the chemical, physical, and radiological properties of the waste are adequately determined. The designation must be accomplished with sufficient accuracy to ensure that subsequent treatment, storage, or disposal of the waste is protective of human health and the environment.

In addition to the requirements of the WAC, it is proposed that all CERCLA remediation waste meeting the definition of debris defined in 40 Code of Federal Regulations (CFR) 268.2 be characterized by applying knowledge of the waste constituents expected to be contaminating the debris. Only a fraction of the chemical and radiological constituents associated with the material known to have come in contact with the debris will be used to characterize the debris. For debris contaminated with material from the contents of the PM-2A Tanks, the 90% upper confidence limit (UCL) of the average radiological and chemical analytical data associated with the contents of the PM-2A Tanks is the value to which the "debris contamination factor" will be applied to determine the fraction of contamination on the debris. For debris contaminated during the PM-2A Tanks soil removal and soil sampling actions, the 90% UCL

for the average radiological and chemical analytical data associated with the PM-2A Tanks soil the debris came in contact with, is the value to which the contamination factor will be applied to determine the fraction of contamination on debris. The contamination factor will similarly be applied to debris that comes in contact with contaminated soil from the TSF-03 Burn Pit excavation activities. Application of the debris contamination factor will be in accordance with the draft EDF -3570, "Waste Characterization Strategy for Contaminated Debris," (EDF-3570).

3.4 INEEL Management and Disposition

Waste generated at the INEEL as a result of CERCLA remedial activities includes hazardous, MLLW, low-level radioactive waste (LLW), and industrial waste (IW). These various types of waste may contain contaminants such as PCBs or asbestos that might be regulated by TSCA and the National Emissions Standards for Hazardous Air Pollutants. This waste may be disposed of at the INEEL, if it meets the specific facility's waste acceptance criteria. Most of the CERCLA-generated waste will be sent to the ICDF for disposal, although CERCLA-generated IW is typically disposed of at the INEEL Landfill Complex. The use of the Radioactive Waste Management Complex (RWMC) is an additional option for disposal of suitable CERCLA-generated LLW.

3.4.1 Waste Planned for Disposal at the INEEL CERCLA Disposal Facility

Most of the waste described in this plan is expected to be disposed of at the ICDF. This waste will be required to meet the ICDF's current waste acceptance criteria. Both hazardous and MLLW also must meet applicable RCRA LDRs.

3.4.2 Waste Transported to Non-INEEL Facilities

Some of the waste generated during CERCLA remedial activities is expected to be sent to a TSD facility located outside INEEL boundaries. However, CERCLA hazardous or mixed waste that is sent outside INEEL boundaries for treatment, storage, or disposal may be sent only to a permitted or interim status TSD facility that has been found suitable to receive hazardous waste from CERCLA remediation sites by the TSD facility's own EPA Regional Office, in accordance with 40 CFR 300.440(a)(4).

3.4.3 Wastes Planned for Disposal at Non-CERCLA INEEL Facilities

The management and disposition of the waste streams described in this WMP are based on information from the RI/FS (DOE-ID 1997), the ROD (DOE-ID 1999), the RD/RA work plan (DOE-ID 2003a), and other available data. Estimated volumes, initial characterizations, anticipated treatments (if any), and planned dispositions were developed and reviewed in the preparation of this WMP. A primary objective of this plan is to evaluate the appropriateness of management and disposal options for the anticipated waste. Appropriateness of a disposal option is based on whether a particular waste could reasonably be expected to cause or contribute to an environmentally significant release of hazardous substances from a selected facility. Releases of hazardous substances to the air or groundwater in quantities that could reasonably be expected to pose a significant threat to human health and the environment are considered environmentally significant. Any waste described in this WMP that would be reasonably expected to exceed this threshold criterion will be evaluated separately to determine the suitability of the waste for disposal. This particular waste will not be shipped for disposal unless special provisions are made and documented to mitigate the potential for release. The primary list of hazardous substances under CERCLA is contained in 40 CFR 302.4, "Designation, Reportable Quantities, and Notification, Designation of Hazardous Substances." As the remedial process proceeds and additional information becomes available, reviews that are more detailed will be conducted (as described below), to ensure that

waste planned for specific disposal options meets the detailed waste acceptance criteria for each specific facility.

3.4.4 Managing Low-Level Waste for Disposal at the RWMC

The RWMC includes a LLW disposal unit that is operated by the DOE under the Atomic Energy Act, as amended. Operations of the LLW disposal facility at the RWMC are governed by DOE orders. Department of Energy Headquarters has determined that the RWMC LLW disposal facility complies with DOE orders and that the facility is authorized to operate. To ensure that the LLW sent to RWMC for disposal is appropriate and suitable for disposal at RWMC, the waste is evaluated by Waste Generator Services (WGS) to ensure that the waste will meet the RWMC WAC. The RWMC is not permitted by the EPA or licensed by the Nuclear Regulatory Commission to dispose of RCRA hazardous or mixed waste. To ensure hazardous or mixed waste is not sent to RWMC, a hazardous waste determination for each waste stream will be completed by WGS to ensure that the CERCLA LLW (a) does not exhibit the characteristics of a hazardous waste and has not been in contact with a listed hazardous waste; or (b) that it has been analyzed to demonstrate that it no longer contains a hazardous waste above risk-based concerns. When appropriate, the hazardous waste determination may be based on process knowledge concerning the origin and history of the waste proposed for disposal. To help ensure that LLW is managed to protect human health and the environment, the RWMC employs the following methods:

- Characterization of CERCLA LLW by WGS to ensure that the requirements of the waste acceptance criteria are met before shipment to the RWMC
- Prohibiting the receipt of RCRA hazardous or mixed waste
- Prohibiting the receipt of free liquids at the facility
- Inspections of received waste to validate that the waste meets the waste acceptance criteria and is consistent with the waste profile
- Implementation of an environmental monitoring program at the RWMC.

Environmental monitoring data has not indicated an environmentally significant release of hazardous substances to the air or groundwater from current LLW disposal operations at the RWMC. If future environmentally significant releases to the air or groundwater are identified, those releases may be subject to response actions, as stipulated by Section V of the FFA/CO (DOE-ID 1991).

3.4.5 Managing Industrial Waste for Disposal at the INEEL Landfill Complex

Industrial waste is solid waste that is neither radioactive nor hazardous. At the INEEL, IW streams are typically disposed of at the INEEL Landfill Complex. Many types of CERCLA IW are generated in the AOC as a result of material used in a remediation project that the generator believes has not been contaminated with either radioactive or hazardous materials. This absence of contamination is validated by radiation surveys or visual inspections. A general hazardous waste determination is prepared for routinely generated IW to document that the waste is neither radioactive nor hazardous. Industrial waste streams that have a higher probability of containing constituents restricted from disposal are considered non-routine and will undergo a waste stream-specific hazardous waste determination. This determination is accomplished by sampling, performing radioactive surveys, using process knowledge of the waste-generating process (e.g. determining if the waste was mixed with a listed waste or derived from the treatment, storage, or disposal of a listed waste), and evaluating the composition of the IW. Waste Generator Services evaluates CERCLA IW to determine if the waste meets the IW acceptance criteria.

Industrial waste is generally collected in IW collection dumpsters posted with signs describing acceptable and prohibited items. However, to ensure that disposal of IW is protective of human health and the environment, the INEEL Landfill Complex employs the following additional methods:

- Characterization of IW by WGS to ensure that the requirements of the waste acceptance criteria are met before to shipment to the facility
- Prohibiting the receipt of radioactive and hazardous waste
- Prohibiting the receipt of free liquids at the landfill
- Inspecting received waste to validate that it meets the acceptance and waste determination criteria
- Periodic location and sampling of groundwater monitoring wells near the INEEL Landfill Complex.

Environmental monitoring data has not indicated an environmentally significant release of hazardous substances to the air or groundwater from current IW disposal operations at the INEEL Landfill Complex. The current disposal area at the INEEL Landfill Complex is a solid waste management unit. As such, if future environmentally significant releases to the air or groundwater are identified, those releases may be subject to response action, as stipulated by Section V of the FFA/CO (DOE-ID 1991).

3.4.6 Waste Packaging and Transportation

Before CERCLA waste is transported to a disposal facility, WGS and packaging and transportation personnel will be contacted to ensure that the waste is properly containerized and labeled. All sampling and transportation will occur in compliance with the applicable U.S. Department of Transportation (DOT) and RCRA regulations, and with PLN-120, "Hazardous Material Packaging and Transportation Quality Implementation Plan." Contact with the disposal facility must be made in advance to allow both the facility and the shipper the time required to make any preliminary arrangements. A waste evaluation and confirmation process will be conducted to ensure that the waste will meet the disposal WAC.

3.4.7 Managing Waste Information

Information pertaining to waste characteristics, waste generation and storage locations, disposition plans, and waste shipments for CERCLA MLLW, CERCLA LLW, and non-routine CERCLA IW generated at the INEEL is maintained in an electronic database called the Integrated Waste Tracking System (IWTS). Material profiles are developed by IWTS to provide characterization information that is specific to a particular waste stream. As the waste is generated, information pertaining to individual containers of waste is reported in individual IWTS container profiles.

The information in the IWTS material profiles and container profiles is certified by a WGS waste technical specialist (WTS), who certifies that a hazardous waste determination has been performed and that the information is complete and accurate based on the analytical data or process knowledge used for characterization. The WTS also certifies that the information for the container falls within the bounds of the parent material profile. A different WGS WTS follows with an independent review of the information for completeness and accuracy. Finally, the information in the material and container profiles is approved by a WGS WTS who authorizes WGS to dispose of the waste in accordance with the disposition path defined in the IWTS material profile, and authorizes that the waste meets the acceptance criteria of the

facility or facilities where the waste will be disposed of. This approval must not be performed by the WTS performing the review.

Waste technical specialists use the information in the IWTS material and container profiles to ensure that CERCLA waste meets the acceptance criteria of the receiving facility. The IWTS also tracks shipments of waste to various facilities using specific IWTS shipping tasks. All receiving facilities, including those located outside the boundaries of the INEEL, must approve waste shipments before they are shipped. This approval is not documented in the IWTS database, but is maintained in a hard copy file with the waste characterization information.

It should be noted that not all CERCLA IW is tracked in the IWTS database. An example of IW that is not tracked in the IWTS is routine office waste. This waste is placed into IW receptacles that are placarded with permissible content information. Some IW is tracked in the IWTS database to ensure that the INEEL Landfill Complex is aware that the waste is being shipped and that it meets the facility's acceptance criteria. An example of IW that is tracked in the IWTS is color-coded material such as yellow shoe covers. Since yellow shoe covers are typically used for protection against radioactive contamination, a special profile has been prepared for color-coded personal protective equipment that has been surveyed and found not to be contaminated with radioactivity, or that has been used for training purposes. Another example is containers that have had all contents removed and are not radiologically contaminated. Container profiles are typically not prepared for IW because the waste is shipped to the facility in reusable receptacles, in bulk shipments, or is not containerized.

There will be MLLW and possibly TSCA PCB waste generated at physical interfaces between Voluntary Consent Order (VCO)- and CERCLA-managed programs. The MLLW and/or TSCA PCB waste generated to support CERCLA remediation activities will be managed as CERCLA remediation waste (as detailed in this Waste Management Plan), and in accordance with the ROD and the ESD (DOE ID 1999, 2003b). The MLLW and/or TSCA waste generated to support VCO activities will be managed in accordance with applicable RCRA and/or TSCA regulations.

3.4.8 Storage, Inspection, and Recordkeeping

All containers of CERCLA MLLW and/or TSCA PCB remediation waste generated during the cleanup activities will be stored in an approved CERCLA waste storage area (WSA) until they are transferred to an appropriate treatment, storage, or disposal facility. Storage, inspection, and recordkeeping will be performed according to the applicable, relevant, and appropriate requirements identified in the ROD and the ESD (DOE-ID 1999, 2003b). A sample checklist for the WSA is attached as Appendix A. Waste generated from this remediation project may be transported to INEEL TSD facilities that are appropriate to each specific waste type. Mixed low-level waste and TSCA waste will only be managed in facilities approved for the specific waste type.

3.4.9 Managing Waste in the Area of Contamination

Work within the AOC includes soil excavation and removal, tank contents removal, tank sizing and removal, and soil sampling. For waste management purposes, the AOC is defined as the area of contiguous contamination surrounding the PM-2A Tanks and the TSF-03 Burn Pits. This area is delineated by the presence of radioactive or hazardous contamination resulting from system operations. Waste generated as part of this remediation effort may be managed within the AOC or at other appropriate waste management facilities. Hazardous waste that is generated during remediation activities, and that leaves the AOC, will be required to meet land disposal restriction standards before disposal.

4. REFERENCES

40 CFR 268.2, "Land Disposal Restrictions, Definitions," *Code of Federal Regulations,* Office of the Federal Register, October 1, 2001.

40 CFR 300.440, "National Oil and Hazardous Substances Pollution Contingency Plan, Subpart E — Hazardous Substance Response, Procedures for Planning and Implementing Off-Site Response Actions," Code of Federal Regulations, Office of the Federal Register, January 1,2002.

40 CFR 302.4, "Designation, Reportable Quantities, and Notification, Designation of Hazardous Substances," Code of Federal Regulations, Office of the Federal Register,

54 FR 48184, "National Oil and Hazardous Substances Contingency Plan," *Federal Regulations,* Office of the Federal Register.

DOE-ID, 1991, *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory,* **U.S.** Department of Energy Idaho Operations Office, **U.S.** Environmental Protection Agency, Region 10, State of Idaho Department of Health and Welfare, December 1991.

DOE-ID, 1997, *Comprehensive Remedial Investigation/Feasibility Study for Test Area North, Operable Unit 1-10 at the Idaho National Engineering and Environmental Laboratory,* DOE/ID-10557, Rev. 0, **U.S.** Department of Energy Idaho Operations Office, November 1997.

DOE-ID, 1999, *Final Record of Decision for Test Area North, Operable Unit 2-20,* DOBID-10682, Rev. 0, **U.S.** Department of Energy Idaho Operations Office, May 1999.

DOE-ID, 2003a, *Remedial Design/Remedial Action Work Plan for Group 3. PM-2A Tanks and Bum Pits for Test Area North, Waste Area Group 1, Operable Unit 2-10,* DOE/ID-11073, Rev. 0, U.S. Department of Energy Idaho Operations Office, December 2003.

DOE-ID, 2003b, *Explanation of Significant Differences for the Record of Decision for the Test Area North, Operable Unit 1-10,* DOBID-11050, Rev. 0, **U.S.** Department of Energy Idaho Operations Office, March 2003.

EDF-096-019,2003, "ICDF Landfill WAC Evaluation," July 2003.

EDF-3570, 2003, "Waste Characterization Strategy for Contaminated Debris (Draft)," Environmental Restoration, March 2003.

INEEL, 2003, *Decontamination Plan for Group 3, PM-2A Tanks and TSF-03 Burn Pit for Test Area North, Waste Area Group 1, Operable Unit 1-10* , INEEL/EXT-03-00283, Rev.0, Idaho National Engineering and Environmental Laboratory, December 2003.

PLN-120, 2002, "Hazardous Material Packaging and Transportation Quality Implementation Plan," Rev. 5, April, 2002.

PLN-114, 2002, "INEEL Emergency Plan/RCRA Contingency Plan," Rev. 18, December 24,2002.

Appendix A

Comprehensive Environmental Response, Compensation, and Liability Act Waste Storage Area Checklist (Sample)

(This sample checklist is produced for information purposes only. It is an example of a checklist that could be effectively used in waste storage area management under this plan.)

Appendix A

Comprehensive Environmental Response, Compensation, and Liability Act Storage Area Inspection Checklist (Sample)

Registration Number

YES NO N/A

1. ___ ___ ___ Is there waste in the area? **IF** "NO," inspection is complete, sign and date below.

2. ___ ___ ___ **Is** an up-to-date copy of the registration form posted at the area?

3. ___ ___ ___ Are **"NOSMOKING** signs posted in the area **if** storing RCRA ignitable or reactive waste?

4. ___ ___ ___ Are all waste containers labeled with the words "**CERCLA WASTE**" and an **IWTS** barcode?

5. ___ ___ ___ Are all non-waste items stored in the area appropriately marked **or** labeled for identification?

6. ___ ___ ___ Is the housekeeping in the area adequate?

7. ___ ___ ___ **Is** there adequate aisle space for personnel and equipment to respond to emergencies?

8. ___ ___ ___ Are all waste containers closed except when adding or removing waste?

9. ___ ___ ___ **Is** each waste container compatible with the waste stored in it?

10. ___ ___ ___ Are all waste types segregated within the area to maintain requirements **for** compatibility?

11. ___ ___ ___ Do quantities recorded in the logbook equal quantities stored in the area?

12. ___ ___ ___ Are waste types and quantities in accordance with those specified in the Appendix L of the **INEEL** Emergency Plan/RCRA Contingency Plan?

13. ___ ___ ___ Is the Emergency and Communications Equipment present as listed in the Appendix L of the INEEL Emergency Plan/RCRA Contingency Plan?

14. ___ ___ ___ Are there, or have there been, any releases or spills in the area since the last inspection?

15. _____ If "Yes" to Question 14, has the spill or release been reported to the emergency coordinator listed in the Appendix L of the INEEL Emergency Plan/RCRA Contingency Plan?

16. _____ If "Yes" to Question 14, has the spill or release been remediated and the spill and remediation documented on this checklist?

17. ___ ___ ___ Are all containers and/or PCB items in good condition with no leakage or signs of deterioration?

18. ___ ___ ___ Is PCB containment volume equal to 2 times the internal volume of the largest PCB article or PCB container or 25% of the total internal volume of all PCB articles or containers, whichever is greater?

19. ___ ___ ___ Is the entrance to PCB storage marked with a large PCB M_L mark? (40 CFR 761.45)?

20. ___ ___ ___ Is each PCB item or container marked with a PCB M_L or M_S mark?

21. ___ ___ ___ Are items marked with an out-of-service date?

22. _____ Have previously identified deficiencies undergone resolution? Indicate status on back of inspection form.

CERTIFICATION OF INSPECTION

I certify that all of the above applicable items have been inspected. Date_____ Time _____

Name (print)_____Inspector

Signature_____

Deficiency Resolution Tracking Table

For each "No" answer identified on the inspection checklist, note the item number and describe the nature of the deficiency in the table. **A** "Yes" answer to Question No. 14 would indicate a spill and should be logged as a deficiency. Each week, indicate the status of previously identified deficiencies that have not yet been resolved.

Inspection Item Number	Date Identified	Description of Deficiency	Deficiency Resolution Status

This checklist must be maintained at the facility for the current inspection year and 5 years hence.